

Mercury Stack Gas Analyzer



MODEL NO : OMG-2000-Hg

A Ideal Instrument to Monitor Mercury
Gas in the Emissions

Focusing on Environmental & Industrial Analysis

Company Profile

VASTHI founded in 2007, is located in guntur, Andhra Pradesh, india. We are a professional manufacturer of high-tech environmental monitoring equipment, analytical instruments, industrial process control and industrial safety products.

We have five major products' series: Ultra-violet DOAS gas analyzer, laser TDLAS gas analyzer, water quality testing instruments, air quality monitoring system, and gas leak alarm. We have developed more than 60 product models for these series, basically covering air and water pollution monitoring, metallurgical industries, chemical and other on-line monitoring needs. Some of our products include back-scatter laser dust monitor, high temperature humidity meter, deNOx ammonia analyzer, sulphur analyzer, trace Cl2 system, UVI water analyzer, ammonia nitrogen analyzer, colorimetric heavy analyzer, anodic stripping voltammetry heavy metal analyzer, VOCs online monitoring system, environmental quality monitoring system, atmospheric extinction monitoring system, FTIR gas analyzer etc.



We've integrated fields including microelectronics, telecommunication, software, electrical and mechanical engineering and other area of technology. We are among the few worldwide manufacturers that have proprietary right for gas analysis, water analysis and dust analysis products at the same time. We're into technology innovation oriented driven organization. We trade with many corporate customers, including domestic and foreign source on-line water/gas monitoring/process analysis system integrator; agents, operation and maintenance providers; equipment manufacturers, thermal power plants, sewage treatment plants, chemical plants. We provide our clients with highly cost-effective intellectual monitoring instrumentation and analysis equipment, analysis module/component, CEMS program sets, complete set of water quality analysis program and other similar products. We accept OEM, also provide ODM, on behalf of operation and maintenance and other services.

VASTHI Technology is committed to the integrity, strength and quality of our products. We're internationally recognized. We warmly welcome you to visit us for business negotiation and products' inspection.

Our Values and Vision :

Vasthi is a global leader in environmental and industrial measurements. Building on over 10 years of experience, Vasthi provides observations for a better world. We are a reliable partner for customers around the world, offering a comprehensive range of innovative observation and measurement products and services.

ENVIRONMENT Application :

Weather and Environment Business Area serves selected weather-dependent markets where accurate, real-time, uninterrupted, and reliable weather data is essential to run efficient operations.

INDUSTRIAL Application

Industrial Measurements Business Area serves industrial customers in life science, power transmission, and targeted industrial applications. It offers a broad range of measurement instruments to ensure operational quality and productivity.

A : Vasthi Environmental Monitoring Solutions is a leading supplier of environmental monitoring solutions with a global distribution network. We are providing turn-key solutions, especially with our own products for Ambient Air Quality Monitoring. With our products and services we are covering the entire value chain providing customised solutions including metering (hardware and software), monitoring (tailormade visualizations), technical and operational trainings on-site, O&M support and continuous assistance, surveillance and remote diagnosis, regular services and software updates.

With the Ambient Air Quality Monitoring, we have established a proprietary product for measuring ambient air quality. Our system is the world's first integrated compact monitoring system using type approved reference methods. A turn-key product that can be quickly and easily installed with 50% lower total cost of ownership than conventional metering stations

B: The Vasthi gas analyzers measure, analyse and document whether values of the gases such as CO, NO, NO₂, SO₂, H₂S, C_xH_y and CO₂ are adhered to the prescribed safety levels. Irrespective of whether you carry out spot or long-term measurements, we offer a comprehensive range of gas analysers for multiple gases. Our gas Analysers help you with optimum gas analysis, exhaust gas measurement and the subsequent setting of your production plants-be it a furnace, boiler, gas turbine, engine or also an incinerator.

The vasthi gas analysers is a rugged, easy-to-use exhaust gas analyzer designed to meet the highest demands when it come to carrying out precise industrial emission measurements and providing proper data administration. The Analysis Box can be operated with up to 6 gas sensors, 5 of which are optional. This allows you to select freely from sensors for CO, NO, NO₂, SO₂, H₂S, C_xH_y and CO₂

- ❖ Increased measurement range for unlimited measurements even when gas concentrations are higher
- ❖ Easy-to-change gas sensors and easy access to wearing period
- ❖ Sealed housing with built-in impact protection for use in harsh conditions
- ❖ Automatic processing of measuring programmes over a longer period

C: When working with dangerous substances, people have to navigate through a multitude of different challenges. With our history, experience and expertise of on-the-job safety, vasthi offers a comprehensive product portfolio to suit your individual needs the goal of all the gas detection equipment offered by Vasthi is to keep your workplace and your employees safe from explosions, fire, suffocation, and other injuries related to the inhalation of toxins. Whether you need gas detectors for remote sampling, confined spaces, area monitoring, or personal protection, we have a range of durable equipment while at the same time offering cost-effective solutions that are tailored to your individual needs.

UV DOAS Technology

System Introduction

Based on Cold Vapor Atomic Fluorescence Spectrophotometer Technology, VASTHI has developed stack mercury continuous emission monitoring system to detect the real time concentration of emission mercury and its cumulate emission rate. It is able to monitor gaseous elemental mercury, ionic mercury and total gaseous mercury. Its detection limit is low $0.05\mu\text{g}/\text{m}^3$. This system is widely applied to measure mercury concentration in the tail of gas of many industries, such as mercury minerals refining process, mercuric chloride catalyst recycling, Cola-fired power plant and etc.

Application

- ✓ Power plant Boilers
- ✓ Industrial/Civil boilers
- ✓ Industrial furnaces
- ✓ Domestic refuse incinerator
- ✓ Hazardous waste incinerator
- ✓ The extraction and distillation of mercury
- ✓ Recovery and Regeneration of mercury catalyst.



Stack mercury analyzer



Elemental mercury generator

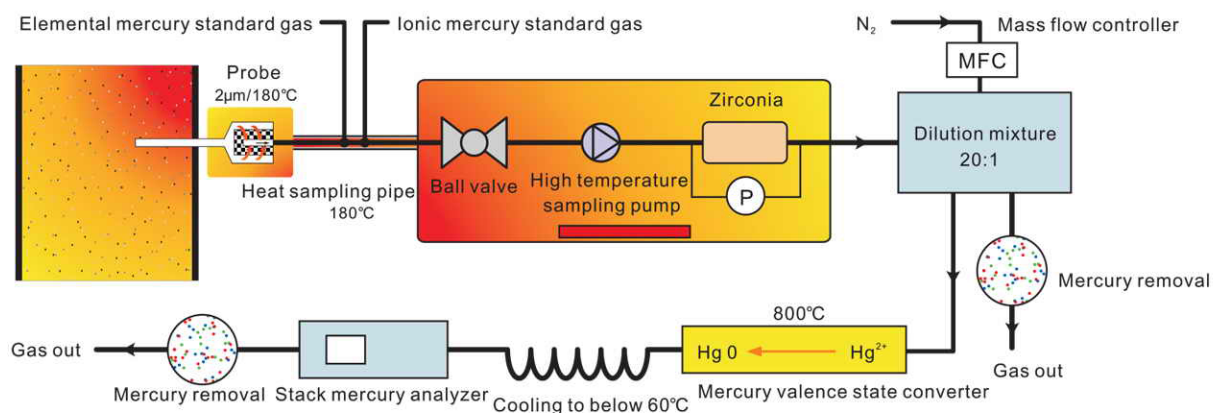


Ion mercury generator

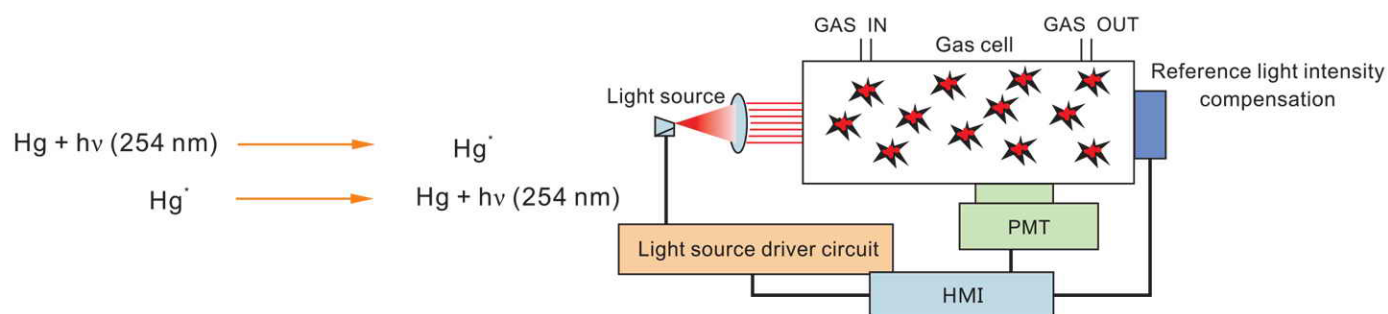
Temperature, pressure and
flow integrated monitor

Technology Principle

Under the action of high temperature sampling pump, sample gas passes through sampling probe, heat sampling pipe and high temperature ball valve and diluted with high purity nitrogen under precise control. The Dilution ratio is 20:1. After adjusting the flow, the diluted gas enters mercury valence state converter. By catalyzing at 800°C , the mercury ions is converted to mercury analyzer to measure the concentration of total mercury after cooling down. The gas will be treated with mercury removal and emptied at last.

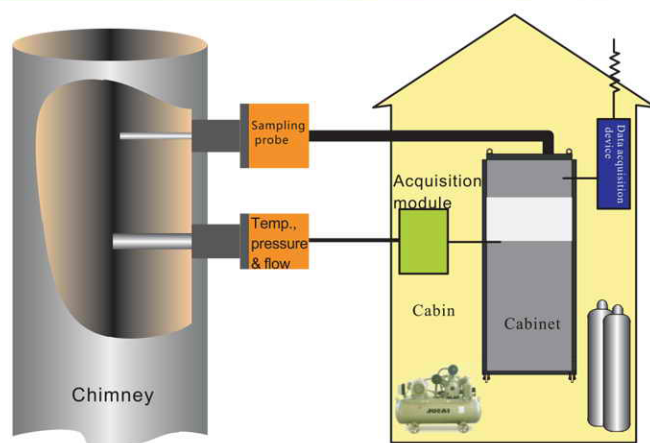


The system adopts the technology of Cold Vapor Atomic Fluorescence Spectrophotometer (CV AFS). The low voltage mercury lamp shots 254nm ultra-violet light on measured object with mercury vapor: the mercury atom absorbs energy and is transited to excited state from steady state. When mercury atom is transit from unstable excited state to steady state, it will radiate 254nm fluorescence and the fluorescence is proportional to mercury atom. The Fluorescence intensity is converted into electrical signals by the photomultiplier tube. After amplification and A/D conversion, the micro controller is used for data processing to work out the concentration of mercury atoms. The measured result will be displayed and printed.



Structural Composition

Based on CV FAS Technology, VASTHI has developed stack mercury continuous emission monitor system to detect the real time concentration of emission mercury and its cumulate emission rate. It Consists of sampling probe, heat sampling pipe, pretreatment system, stack mercury analyzer, elemental mercury generator, ionic mercury generator and nitrogen



Feature

- ★ Cold Vapor Atomic Fluorescence Spectrophotometer Technology
- ★ Fast Response Time
- ★ Low detection limit and low temperature drift
- ★ Strong resistance to absorbability
- ★ Combining internal and external purge-long maintenance intervals.
- ★ Real time Monitoring the dilution ratio, restore the concentration of HG and reflecting true working condition
- ★ Mercury valence state catalyzed and converted at 800°C- converting rate up to 95%
- ★ Support automatic zeroing for whole system
- ★ Self- Diagnosis function, send alarming signal of temperature control, flow and etc.
- ★ Low Velocity measurement technology to resolve the velocity limit of regular product.
- ★ Key components imported and ensured with high quality
- ★ Self-Developed core modules and algorithm-obvious competitive advantages.
- ★ Compact structure of high integration
- ★ Anti-Explosion during transportation and installation.

System index

Dimension	800mmx800mmx1800mm	Power Supply	220VAC, 8000W
Heating Temperature	140°C ~ 180°C	Operating Temperature	-20°C ~ +50°C
Enclosure Rating	Cabinet IP42, other IP	Operating Humidity	0 ~ 95%RH (non condensing)
External Output	5x4-20mA, 6xRS232 (Support Modbus protocol, GB 212 agreement, local custom protocols, etc.		
Compressed Air	(0.9 ~ 1.0) MPa, 0.25m3/min, clean and free of oil and water(dew point point-40°C		

Product description

Based on cold vapor Atomic Fluorescence Spectrophotometer technology, this analyzer is able to monitor the concentration of gaseous elemental mercury, ionic mercury and total gaseous mercury The system is with high sensitivity and stability, fast response time and wide measuring range. Its operation cost is quite low. All Indexes are comparable or even beyond the similar of domestic and

Technical index

- ★ Measurement Technology principle: Cold Atomic Fluorescence Spectrometry
- ★ Range : 0-5μg/m³-2005μg/m³
- ★ Detection Limit :<0.055μg/m³
- ★ Indication Error : ≤±5%
- ★ Stability :≤ 1 hour change ±1%
- ★ Repeatability:<1%
- ★ Zero Drift : ≤±1% F.S.
- ★ Span Drift : No more than±1% F.S.
- ★ Resonse Time(T99):<90s
- ★ Relay Output:4,output can be flexiblconfiguration,24VDC
- ★ Analog Out put : 2*4-20mA,flexible configuration,max load 800Ω
- ★ Digital Comm : 1*RS485 ,1*RS232
- ★ Power : 220VAC/100W
- ★ Working Temp :-20℃~+50℃

Feature

1. Cold Atomic fluorecence technology with high sensitivity
2. The detection limit is low to 0.055μg/m³
3. Widemeasuring range,high accuracy
4. Continuous monitoring with fast response.
5. Long service life of the light source.
6. With reference detector-real-time compensate the concentration deviation caused by light intensity attenuation
7. Key components imported and ensured with high quality.



Stack mercury analyzer

Product description

Elemental mercury generator is used to produce mercury gas with stable concentration, which is used for mercury system pretreatment and calibration of mercury analyzer. The basic principle of elemental mercury analyzer is permeation tube. To produce accurate elemental mercury concentration, the temperature controller will control the permeation tube below $50^{\circ}\text{C} \pm 0.1^{\circ}\text{C}$, and high precision MFC will accurately control the gas flow. After a period of preheating, the stable concentration of elemental

Technical index

- ★ Temp. Controller : 50°C
- ★ Precision of temp. controller : $\leq 0.1^{\circ}\text{C}$
- ★ Temp. absolute error: no more than $\pm 0.5^{\circ}\text{C}$
- ★ Range of gas flowmeter: $0 \sim 20\text{L/min}$
- ★ Gas flow error : $\leq \pm 0.5\%$ F.S
- ★ Concentration of output Hg: $70\mu\text{g/min}$

Feature

1. High precision control pump of gas flow, the flow accuracy reaches 0.35%
2. High precision temperature control system, small temperature control fluctuation, even temperature distribution.
3. Permeation tube adopted- easy to maintain and replace
4. Generate elemental mercury of wide range and high accuracy
5. Self-diagnosis function, temperature control and flow alarming
6. Non-metallic anti-adsorption materials are used in the whole gas path.



Elemental mercury generator

Product description

Ionic Mercury generator is used to produce a stable concentration of mercury ion gas. It is used to calibrate the conversion efficiently of mercury valence state converter. In order to produce accurate ion mercury concentration, the high precision MFC will control the gas flow, and the high precision liquid pump will pump the mercury chloride solution into the evaporator. Two mediums will be heated to 180°C

Technical index

- ★ Gas Flow Meter Range : $0 \sim 20\text{L/min}$
- ★ Gas Flow Error : No more than $\pm 0.5\%$ F.S.
- ★ Minimum Control Flow of Liquid Flow pump : $0.55\mu\text{L/min}$
- ★ Liquid Flow Error : No more than $\pm 0.35\%$
- ★ Temperature Control precision : $\leq 0.1^{\circ}\text{C}$
- ★ Temperature Absolute Error : no more than $\pm 0.5^{\circ}\text{C}$
- ★ Output Mercury Concentration Range : $5\mu\text{g/m}^3 \sim 200\mu\text{g/m}^3$
- ★ Digital Output : RS232

Feature

1. High precision liquid/gas flow control pump with a flow accuracy of 0.35%
2. Self-diagnosis function, temperature control and flow alarming
3. Generate ionic mercury of wide range and high accuracy



Ionic mercury generator

1. High precision liquid/gas flow control pump with a flow accuracy of 0.35%
2. Self-diagnosis function, temperature control and flow alarming
3. Generate ionic mercury of wide range and high accuracy
4. The evaporator adopts hysteretic gas path, the ionic mercury vapour is evenly mixed with nitrogen and the concentration is stable
5. Non-metallic anti-adsorption materials are used in the whole gas circuit.

Product description

PT-500 is designed for low velocity (2m/s-5m/s) applications. The instrument uses precision micro-differential pressure/static pressure sensor and unique pitot tube structural design, combining with auto calibration and cleaning function. It can be widely used for real-time and continuous measurement of flue gas temperature, pressure and velocity.

Technical index

- ★ Velocity : 0-15.5 m/s, 0-40m/s(customizable)
- ★ Temperature : 0-300°C , 0-800°C(customizable)
- ★ Pressure : -10kpa~+10kpa(customizable)
- ★ Measuring Accuracy : $\pm 2\%$ F.S.
- ★ Signal Output : 3*isolation 4-20mA, 1*RS485, 1*RS232
- ★ Material of pitot Tube : 316L steel, PTFE (optional)
- ★ Power supply of Blowback Electromagnetic Valve : 220VAC, 50/60 Hz

Feature

1. Ultra-high-precision pressure sensor achieves the measurement of low-flow (2m/s)
2. LCD operating unit provides good human-machine interaction interface
3. Settable timing backblow interval, pilot coefficient and etc
4. Overpressure protection effectively avoids pressure sensor being damaged and reducing operating costs.
5. Strengthen output signal protection.



Temperature, pressure,
flowrate integrated monitor



VASTHI INSTRUMENTS

Plot no: 21 & 22 , Block no: 24, Phase - IV ,
Auto Nagar, Guntur - 522 001, Andhra Pradesh, India.

Tel : +91 863 2238 667, +91 738 2708 685, +91 958 1678 685

web: www.vasthi.com,

E: info@vasthi.com, sales@vasthi.com